

# WEB DEVELOPMENT REVIEWER (Comprehensive Edition)

## 1. JavaScript Introduction

JavaScript (JS) is a high-level programming language that makes web pages interactive and dynamic. It runs inside the browser and allows developers to control webpage behavior like animations, button clicks, and more.

- Runs in: Browsers (Chrome, Edge, Firefox, Safari)
- Variables: `let name = "Juan";`
- Data Types: String, Number, Boolean
- Operators: `+`, `-`, `*`, `/`
- Conditions: `if...else`
- Loops: `for` loops
- Functions: reusable code blocks

Example:

Change Color

```
<br/>function changeColor() {<br/> document.body.style.backgroundColor =  
"lightblue";<br/>}<br/>
```

## 2. JavaScript and the DOM

The Document Object Model (DOM) represents a webpage as a tree of objects that JavaScript can access and modify.

- `getElementById()`, `querySelector()` → Select elements
- `innerHTML`, `textContent` → Modify content
- `style` → Change CSS dynamically
- `createElement()`, `appendChild()` → Add elements
- `addEventListener()` → Handle user events

Example:

Click Me

```
<br/>document.getElementById("btn").addEventListener("click", () => {<br/> alert("Button  
clicked!");<br/>});<br/>
```

## 3. CSS Grid Layout

CSS Grid is a two-dimensional layout system that helps you design web pages using rows and columns.

```
.container {  
display: grid;  
grid-template-columns: 1fr 1fr 1fr;  
gap: 10px;  
}
```

- grid-template-columns/rows → Structure
- gap → Space between items
- grid-column/grid-row → Spanning
- justify-items / align-items → Alignment

Example: repeat(auto-fit, minmax(200px, 1fr)) makes a responsive grid.

## 4. Responsive Web Design (RWD)

Responsive Web Design ensures a website adjusts to fit all screen sizes (desktop, tablet, mobile).

Core Principles:

1. Fluid Grids – use %, em, fr units.
2. Flexible Images – max-width: 100%; height: auto;
3. Media Queries – CSS rules per device width.

Common Breakpoints:

- 1200px – Desktop
- 992px – Tablet (landscape)
- 768px – Tablet (portrait)
- 576px – Mobile

Benefits: Better UX, single codebase, SEO-friendly, future-proof.

## Overall Summary

JavaScript → Adds interactivity and logic.

DOM → Connects JS to HTML.

CSS Grid → Creates structured layouts.

Responsive Design → Adapts sites for all screens.